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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/866,662      | 05/30/2001  | Hideaki Kuroda       | SON-1199/CON        | 6271             |

7590 12/10/2003

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| EXAMINER |
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PRENTY, MARK V

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2822

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                 |  |
|------------------------------|-----------------|-----------------|--|
| <b>Office Action Summary</b> | Application No. | Applicant(s)    |  |
|                              | 09/866,662      | KURODA, HIDEAKI |  |
|                              | Examiner        | Art Unit        |  |
|                              | MARK V PRENTY   | 2822            |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

This Office Action is in response to the response filed November 6, 2003.

Claims 3-6 are rejected under 35 U.S.C. 102 as being anticipated by Prior Art Fig. 3.

With respect to independent claim 3, Prior Art Fig. 3 discloses a semiconductor device, comprising: a conductive layer pattern formed on a substrate (i.e., the unnumbered doped regions at the substrate surface); a first inter-layer insulating film 154 which covers said conductive layer pattern and is formed on said substrate; a first connection hole formed in an upper layer of said first inter-layer insulating film above said conductive layer pattern; a second connection hole which reaches said conductive layer pattern from the bottom portion of said first connection hole and then has a smaller diameter than that of said first connection hole and formed on said first inter-layer insulation film; a plug 136 having conductivity and filling internal portions of said first connection hole and said second connection hole; a second inter-layer insulating film formed on said first inter-layer insulating film, wherein said second inter-layer insulating film includes up to five layers (culminating in fifth layer 164); a third connection hole which reaches said plug and is formed through said second inter-layer insulating film; and a conductive portion which is connected to said plug and formed in said third connection hole.

Claim 3 is thus rejected under 35 U.S.C. 102 as being anticipated by Prior Art Fig. 3.

With respect to independent claim 4, Prior Art Fig. 3 discloses a semiconductor device, comprising: a conductive layer pattern formed on a substrate (i.e., the unnumbered doped regions at the substrate surface); a first inter-layer insulating film 154 which covers said conductive layer pattern and is formed on said substrate; a first connection hole formed in an upper layer of said first inter-layer insulating film above said conductive layer pattern; a second connection hole which reaches said conductive layer pattern from the bottom portion of said first connection hole and then has a smaller diameter than that of said first connection hole and formed on said first inter-layer insulation film; a plug 136 having conductivity and filling internal portions of said first connection hole and said second connection hole, wherein the upper surface of said plug is formed to almost the same height as the surface height of said first inter-layer insulating film; a second inter-layer insulating film formed on said first inter-layer insulating film, wherein said second inter-layer insulating film includes up to five layers (culminating in fifth layer 164); a third connection hole which reaches said plug and is formed through said second inter-layer insulating film; and a conductive contact portion which is connected to said plug and formed in said third connection hole.

Claim 4 is thus rejected under 35 U.S.C. 102 as being anticipated by Prior Art Fig. 3.

With respect to dependent claim 5 and 6, Prior Art Fig. 3's plug 136 and conductive portion are a storage node contact portion of a dynamic random access memory.

Claims 5 and 6 are thus rejected under 35 U.S.C. 102 as being anticipated by Prior Art Fig. 3.

The applicant's argument is not persuasive.

First, the applicant's reliance on Prior Art Fig. 17 is somewhat misplaced because the rejection is based on Prior Art Fig. 3, not Prior Art Fig. 17.

Furthermore, Prior Art Fig. 3 and Prior Art Fig. 17 are different cross sections of Prior Art Fig. 2's plan view (through lines A-A' and B-B', respectively), with only one common point.

Finally, even assuming for the sake of argument that Prior Art Fig. 17 is relevant to the rejection based on Prior Art Fig. 3, the applicant's attempt to characterize Fig. 17's six layer portion and five layer portion as the second interlayer insulating film and a "node contact not the second interlayer insulating film," respectively, is without merit.<sup>1</sup> The second interlayer insulating film comprises a six layer portion and a five layer portion, and relied-upon Prior Art Fig. 3 illustrates the second interlayer insulating film's five layer portion (with a filled connection hole thereat, as per the rejected claims).

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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<sup>1</sup> The applicant apparently submitted a hard copy of Prior Art Fig. 17 with different portions highlighted in orange and yellow, but that color highlighting has been lost in this application's conversion from a paper application to an Image File Wrapper (IFW) application. However, the applicant's point is still understood.

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Registered practitioners can telephone the examiner at (703) 308-4939 until January 7, 2004 and then at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (703) 308-0956.

*Mark Prenty*  
Mark V. Prenty  
Primary Examiner